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## Seasonal Affective Disorders

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A patient information handout on seasonal affective disorder, written by the authors of this article, is provided on page 1351.

Seasonal affective disorder is a pattern of major depressive episodes that occur and remit with changes in seasons. It may be seen in major depressive or bipolar disorders, as described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The most recognized form of seasonal affective disorder, "winter depression," is characterized by recurrent episodes of depression, hypersomnia, augmented appetite with carbohydrate craving, and weight gain that begin in the autumn and continue through the winter months. Physicians have many options for treating seasonal affective disorder. While questions regarding the validity of seasonal affective disorder as a syndrome and the mechanism of action of light therapy continue to be investigated, the established effectiveness of light therapy in patients with winter depression supports the usefulness of assessment for this seasonal pattern and consideration of light therapy as an option in addition to existing treatment choices.

Depressive episodes are a primary public health problem and one of the most common psychiatric conditions in patients seeing family physicians, with a lifetime prevalence of 17.1 percent in the general population.<sup>1</sup> Some of these mood disturbances follow regular seasonal patterns. These seasonal mood patterns have been termed seasonal affective disorders (SADs).

### Description

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) describes SAD not as a separate mood disorder but as a "specifier," referring to the seasonal pattern of major depressive episodes that can occur within major depressive and bipolar disorders.<sup>2</sup>

*Table 1* summarizes the DSM-IV criteria for a major depressive episode. *Table 2* describes the diagnostic criteria for "seasonal pattern specifier."

**TABLE 1**

**Diagnostic Criteria for a Major Depressive Episode**

- A. At least five of the following symptoms have been present during the same two-week period, nearly every day, and represent a change from previous functioning. At least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

NOTE: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

- (1) Depressed mood (or alternatively can be irritable mood in children and adolescents).
- (2) Markedly diminished interest or pleasure in all, or almost all, activities.
- (3) Significant weight loss when not dieting or weight gain or decrease or increase in appetite.
- (4) Insomnia or hypersomnia.
- (5) Psychomotor agitation or retardation.
- (6) Fatigue or loss of energy.
- (7) Feelings of worthlessness or excessive or inappropriate guilt.
- (8) Diminished ability to think or concentrate, or indecisiveness.
- (9) Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

- B. The symptoms are not better accounted for by a mood disorder due to a general medical condition, a substance-induced mood disorder, or bereavement (normal reaction to the death of a loved one).

- C. The symptoms are not better accounted for by a psychotic disorder like schizoaffective disorder.

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Two seasonal patterns have been identified. The most often recognized is the fall-onset type, also known as "winter depression," in which major depressive episodes begin in the late fall to early winter months and remit during the summer months. Atypical signs and symptoms of depression<sup>2</sup> predominate in cases of winter depression and include the following: (1) increased rather than decreased sleep; (2) increased rather than decreased appetite and food intake with carbohydrate craving; (3) marked increase in weight; (4) irritability; (5) interpersonal difficulties (especially rejection sensitivity), and (6) leaden paralysis (a heavy, leaden feeling in the arms or legs).

A spring-onset pattern (summer depression) also has been described, in which the severe depressive episode begins in late spring to early

summer and is characterized by typical vegetative symptoms of depression, such as decreased sleep, weight loss and poor appetite.<sup>3</sup>

Recent studies report that most episodes of SAD occur within unipolar major depressive disorders, although a substantial minority have accompanying hypomanic episodes (bipolar II disorder, according to the DSM-IV), and very few are associated with manic episodes.<sup>4</sup>

## Epidemiology

Surveys estimate that 4 to 6 percent of the general population experience winter depression, and another 10 to 20 percent have subsyndromal features.<sup>5</sup> Women with SAD outnumber men four to one. The average age of onset is approximately 23 years of age.<sup>4</sup> The risk of SAD appears to decrease with age.<sup>2</sup> Pilot studies of childhood cases of SAD suggest a prevalence rate between 1.7 and 5.5 percent in children between the ages of nine and 19 years.<sup>6</sup>

**TABLE 2**  
Criteria for Seasonal Pattern Specifier

- A. Regular temporal relationship between the onset of major depressive episodes and a particular time of the year (unrelated to obvious season-related psychosocial stressors)
- B. Full remissions (or a change from depression to mania or hypomania) also occur at a characteristic time of the year
- C. Two major depressive episodes meeting criteria A and B in last two years and no nonseasonal episodes in the same period
- D. Seasonal major depressive episodes substantially outnumber the nonseasonal episodes over the individual's lifetime

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## Syndromal Validity and Utility

An understanding of the features and treatment of SAD has grown within the context of a debate about the validity of SAD as a syndrome. For example, it has been suggested that seasonal variations in mood and behavior noted in the general population speak against SAD as a distinctive diagnostic entity.<sup>7</sup> In addition, symptoms of SADs overlap with other, more established subtypes of depression--summer depressions with typical depressive episodes and winter depression with atypical depression.<sup>8,9</sup> Winter

The treatments for "winter depression" and "summer depression" differ, with winter depression responding to light-box therapy, monoamine oxidase inhibitors or psychotherapy, and summer depression responding to the antidepressants used to treat nonseasonal depression.

depression responds to treatment with monoamine oxidase inhibitors (MAOIs),<sup>10</sup> as does atypical depression. Although summer depression has been studied less extensively than winter depression, it appears to respond to the same

antidepressant pharmacotherapy that is used effectively to treat nonseasonal depression.

Some investigators have argued that the validity of SAD as a syndrome is supported by reports that the ratio of winter depression to summer depression increases with increasing latitude and that episodes of winter depression in particular tend to be longer and more severe at higher latitudes.<sup>11</sup> In addition, although manipulation of factors such as heat and humidity has not been effective in treating summer depression, winter depression has responded to artificial bright light therapy, also known as phototherapy.<sup>12</sup> Interestingly, nonseasonal atypical depression has not responded to phototherapy.<sup>13</sup>

Phototherapy starts with a single, daily 10- to 15-minute session in front of a 10,000-lux light box. The duration of daily therapy should be gradually increased to 30 to 45 minutes per day. If symptoms worsen, treatments should be increased to twice daily.

This issue is further complicated by the fact that although phototherapy has proved effective in the treatment of winter depression, its mechanism of action has not been established. Several mechanisms have been advanced, including circadian phase shifting, or reversing the increased melatonin, decreased 5-hydroxytryptamine and decreased dopamine neurotransmission observed in SAD,<sup>4</sup> but it remains unestablished whether phototherapy achieves its well-documented effects through any of these or other mechanisms. Until further research clarifies these issues, phototherapy offers physicians an additional effective treatment option for clearly established cases of winter depression<sup>14</sup> and justifies efforts made to identify this seasonal pattern in patients with depressive episodes.

## Treatment Options and Guidelines

Although light therapy is uniquely effective for winter depressive episodes, treatment planning for patients with SAD should include consideration of all treatment options available, including somatic and psychosocial treatments.

The Agency for Health Care Policy and Research (AHCPR)<sup>14</sup> has recently recommended practice guidelines for depression in primary care, including treatment of seasonal depression. According to these guidelines, the use of light therapy should be considered only in patients with well-documented seasonal, nonpsychotic, winter depressive episodes occurring within recurrent major depressive disorder,

**TABLE 3**

Circumstances Supporting the First-Line Use of Light Therapy

The patient is not severely suicidal.

There are medical reasons to avoid the use of antidepressants.

Patient has a history of favorable response to light therapy.

Patient has no history of significant negative effects to light therapy.

The patient requests light therapy.

bipolar II disorder or milder seasonal depressive episodes. It is also advised that physicians unfamiliar with light therapy consult a professional who is experienced and trained in its use.

Light therapy is a first-line treatment consideration under the circumstances listed in *Table 3*. It is also a second-

line option in patients who fail to respond to an adequate trial of medication.

An experienced practitioner deems that light therapy is indicated.

Information from reference 14.

### Light Therapy

Light therapy is initiated with a 10,000-lux light box directed toward the patient at a downward slant. The patient's eyes should remain open throughout the treatment session, although staring directly into the light source is unnecessary and is not advised. The patient should start with a single 10- to 15-minute session per day, gradually increasing the session's duration to 30 to 45 minutes. Sessions should be increased to twice a day if symptoms worsen. Ninety minutes a day is the conventional daily maximum duration of therapy, although there is no reason to limit the duration of sessions if side effects are not severe.<sup>15</sup>

Commercially available fixtures are recommended over homemade devices to reduce electric risks associated with poor-quality construction. Commercial fixtures also include features designed to protect the eyes, such as light dispersion and screens that eliminate ultraviolet (UV) rays. Fluorescent light is preferred over incandescent because the small point source of the latter is more conducive to retinal damage. Use of "full-spectrum" light appears to be unnecessary.

No time of day is optimal for light therapy. Some studies have reported the superiority of morning sessions,<sup>16</sup> while others have shown no significant difference between times of administration.<sup>17</sup> In the absence of clear indications, convenience should be the prevailing consideration.

Although some patients show an immediate benefit from light therapy, most take two to four days to experience a sustained antidepressant response.

However, a lack of response within the first week should not be interpreted as a treatment failure, since evidence suggests that longer durations of therapy can improve response and that the initial response to light can take several weeks to appear.<sup>18</sup> The treatment plan should be reevaluated, however, if the patient shows any clinical worsening or if a response is not evident in four to six weeks.

Patients who respond to light therapy should continue treatment until sufficient daily light exposure is available to them through other sources, typically from springtime sun.<sup>4</sup> Premature discontinuation can precipitate relapse.

Recently, light visors have been manufactured that can deliver similar illumination

The antidepressant benefits of phototherapy may commence within the first few days of treatment or may take several weeks to appear. Clinical deterioration or lack of response within four to six weeks should prompt re-evaluation.

in a more convenient and portable fashion.<sup>19</sup> However, although studies using light boxes have suggested a positive relationship between the intensity of light and the clinical response,<sup>20</sup> results from studies of light visors have not shown such a relationship. Some investigators have concluded that light boxes operate differently from visors.<sup>21</sup>

It is important to note that no evidence indicates that tanning beds, where the eyes are generally covered and the subject's skin is exposed to light, are useful in the treatment of SAD. Furthermore, the light sources in tanning beds are relatively high in UV rays, which can be harmful to both the eyes and the skin.

When properly administered, light therapy appears to have few side effects, none of which is irreversible. Caution is required when using light therapy in patients with a tendency toward mania, or in those with photosensitive skin or medical conditions that render their eyes vulnerable to phototoxicity. Adverse effects associated with the use of light therapy<sup>22</sup> are listed in *Table 4*. If side effects occur, they typically respond to a "dose" reduction (e.g., decreased duration of sessions, increased distance from the light source or periodic breaks during sessions).

Predictors of a positive response to light therapy include disorders characterized by a history of hypersomnia, a preponderance of atypical vegetative symptoms and an increased intake of sweet foods in the afternoon, as well as a history of reactivity to ambient light.<sup>23,24</sup>

*Table 5* provides patient resource information, including associations that provide support to persons with SAD and sources for light fixtures.

**TABLE 4**  
Adverse Effects Associated with  
Light Therapy

Photophobia
Headache
Fatigue
Irritability
Hypomania
Insomnia (if light therapy is used too late in the day)
Possible retinal damage (although there is no evidence to date)

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Information from reference 22.

### Pharmacotherapy

Although data are limited for the pharmacotherapeutic treatment of SADs specifically, the many studies demonstrating the efficacy of pharmacotherapy in mood disorders, none of which specifically excluded seasonal variations, have supported the use of conventional, first-line antidepressant pharmacotherapy for SADs.<sup>14</sup>

**TABLE 5**

## Resources for Patients with Seasonal Affective Disorders

### Places where light fixtures may be purchased:

Apollo Light Systems  
352 West 1060 South  
Orem, Utah 84058  
Telephone: 800-545-9667

Hughes Lighting Technologies  
34 Yacht Club Dr.  
Lake Hopatcong, NJ 07849  
Telephone: 973-663-1214

Northern Light Technologies  
8971 Henri Bourassa West  
Montreal, Canada H4S 1P7  
Telephone: 800-263-0066

The SunBox Company  
19217 Orbit Dr.  
Gaithersburg, MD 20879  
Telephone: 800-548-3968

### Sources of information:

National Organization for Seasonal Affective Disorders (NOSAD)  
P.O. Box 40190  
Washington, DC 20016  
(Correspondence handled by mail only)

National Depressive and Manic Depressive Association (NDMDA)  
730 N. Franklin, Suite 501  
Chicago, IL 60610  
Telephone: 800-82-NDMDA (800-826-3632)

Society for Light Treatment and Biological Rhythms (SLTBR)  
10200 W. 44th Ave., # 304  
Wheat Ridge, CO 80033-2840  
Telephone: 303-424-3697

National Institute of Mental Health (NIMH)  
Telephone: 800-421-4211

National Mental Health Association (NMHA)  
1021 Prince St.  
Alexandria, VA 22314-2971  
Telephone: 800-969-6642

NOTE: On average, the price of a light fixture may range between \$200 and \$500, depending on the features of the unit. Some insurance companies may reimburse all or a portion of the cost of a light therapy device if proper diagnosis has been made and treatment has been prescribed by a qualified health professional. Some companies offer a rental program for a "trying out" period.

Specific studies of SAD have investigated both antidepressant and nonantidepressant drugs. Few of these studies, however, were placebo-controlled. In controlled trials, fluoxetine, propranolol, and d-fenfluramine have been found effective.<sup>12,25-27</sup> Open trials have also shown favorable results with moclobemide,<sup>25</sup> tranlycypromine<sup>28</sup> and bupropion.<sup>29</sup> Table 6 lists factors suggesting the use of medications in patients with SADs.

Since SADs may occur concurrently with bipolar or unipolar disorders, the type of disorder should guide medication

**TABLE 6**



selection. As with light therapy, physicians should remain sensitive to the risk of precipitating a manic episode in patients with bipolar disorder when using antidepressants.

### Other Treatments

To our knowledge, no controlled studies have investigated the efficacy of electroconvulsive therapy or psychotherapy for SAD specifically. However, very strong evidence supports the efficacy of electroconvulsive therapy,<sup>30</sup> two forms of psychotherapy (interpersonal psychotherapy<sup>31</sup> and cognitive therapy<sup>32</sup>), and combined psychotherapy and somatic therapy<sup>33</sup> in the treatment of depression.

Accordingly, indications for the use of electroconvulsive therapy in patients with SAD are the same as those in patients with nonseasonal depression and include nonresponse to alternative treatments, high suicide risk, psychotic depression and previous positive response to electroconvulsive therapy.<sup>30</sup>

At this time, interpersonal therapy and cognitive therapy are not contraindicated in patients with SAD.

These types of psychotherapy should be considered in patients whose depressive episodes are unipolar, nonpsychotic, nonsevere and not chronic, and in those who do not respond to, who refuse or who cannot participate in phototherapy or pharmacotherapy. Patients with SAD may have personal and interpersonal issues like those occurring in patients with nonseasonal depression and may benefit from the adjunctive use of psychotherapy.

The question of whether light therapy can be combined effectively with pharmacotherapy also awaits controlled study. Although several advantages can be hypothesized (e.g., their concurrent use may ease side effects of medication by allowing lower dosages), current guidelines discourage the simultaneous use of light therapy and medication before either one has been proved insufficient.<sup>14</sup>

### Referral and Consultation

Family practice physicians treating patients with SAD may find specialty referral or consultation useful under some circumstances. AHCPR guidelines include circumstances in which referral or consultation is recommended. The guidelines

### Indications For Pharmacotherapy in Patients with Seasonal Affective Disorders

Prior positive response to antidepressants or mood stabilizers

High suicide risk\*

Marked impairment in occupational functioning or in usual social activities or relationships with others; significant functional impairment

History of recurrent depression in the moderate-to-severe range

Severe subtypes of depression (e.g., psychotic, melancholic, chronic)

Patient preference

Failure to respond to light therapy or psychotherapy

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\*--Need for hospitalization should be assessed in such cases. Also, the patient's supply of medications, especially tricyclic antidepressants, should be limited to prevent overdose.

are suggested for use in all types of depression and are not specific to SADs. Since response to light therapy is usually apparent within the first two weeks of therapy (usually within the first few days) and since safety and efficacy have not been fully established beyond two weeks, the AHCPR recommends consultation with a specialist to determine specific risks and benefits for individual patients.

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